JOURNAL OF ACADEMIC RESEARCH FOR HUMANITIES
ISSN 2663-192x

ORCID of JAR: https://orcid.org/0009-0000-0723-9485
CrossRef DOI Number: 10.67244/jar.bwo-researches.v6i3.a609
Link to the Paper: https://jar.bwo-researches.com/index.php/jarh/article/view/609
Edition Link: Journal of Academic Research for Humanities JARH, 6*(3)* Jul-Sep 2026
HJRS Link: Journal of Academic Research for Humanities JARH (HEC-Recognised for 2026-2027)
YouTube Link for the Paper Video Overview: https://youtu.be/XEAzNv_JwgY

Artificial Intelligence and Comprehensible Input in Second Language Acquisition: Evaluating AI Language Learning Tools through Krashen's Input Hypothesis

Corresponding & Author 1:	**Noor Fatima Lashari**, Student of Master's degree, Applied Linguistics, Chengdu University of Technology, Chengdu, Sichuan, China, noorfatima.sba@gmail.com, https://orcid.org/0009-0007-0073-1865
Author 2:	**Guo Fengming**, Voice Dean of the College of Foreign Languages and Cultures, Chengdu University of Technology, Chengdu, Sichuan, China, 314962964@qq.com, https://orcid.org/0009-0009-1724-0506
Author 3:	**Ayaz Ahmed Maganhar**, Teaching Assistant, Department of English, Shaheed Benazir Bhutto University, Shaheed Benazirabad, Pakistan, Ayaz.maganhar@sbbusba.edu.pk, https://orcid.org/0009-0000-0479-1645

Paper Information

Citation of the paper:
(JARH)Lashari, F. N., Fengmeng, G., Maganhar, A. A., (2026). Artificial Intelligence and Comprehensible Input in Second Language Acquisition: Evaluating AI Language Learning Tools through Krashen's Input Hypothesis. In *Journal of Academic Research for Humanities, 6(3), 13–25.* https://doi.org/10.67244/jar.bwo-researches.v6i3.a609

Subject Areas for JARH:
1 Artificial Intelligence
2 Comprehensible Input
3 Social Sciences & Humanities

Timeline of the Paper at JARH:
Received on: 15-06-2026.
Reviews Completed on: 30-2026.
Accepted on: 11-07-2026.
Online on: 14-07-2026.

License:
Creative Commons Attribution-Share Alike 4.0 International License

Recognised for BWO-R:
HJRS HEC Journal Recognition System

Jointly Published by BWO Research INTL:
BWO RESEARCHES (PVT) LTD INTERNATIONAL

CrossRef DOI Image of the paper:
Crossref

QR Code for the Paper:

Abstract

Artificial Intelligence (AI) has emerged as an increasingly influential tool in second language acquisition (SLA), offering new opportunities for personalized language instruction, immediate feedback, and more interactive learning experiences. Although it has been widely adopted, limited studies have focused on examining whether AI-generated language input aligns with established theories of SLA, particularly Krashen's Input Hypothesis. The current mixed-methods study investigates the extent to which AI-powered language learning tools support the learners' language development by providing comprehensible input (i+1) as proposed in Krashen's input hypothesis. Quantitative data were collected from 40 first-year students of the Department of English at Shaheed Benazir Bhutto University, Shaheed Benazir Abad (SBBU SBA) using a 13-item Likert-scale questionnaire, while qualitative data were collected from 38 screenshots of learner–AI interactions analyzed using content analysis. The quantitative results indicated that the learners perceived AI tools as effective in providing clear language input, immediate feedback, vocabulary support, and increased motivation for language learning. The qualitative results revealed that 60% of AI-generated responses aligned with Krashen's i+1 principle, 25% were below the learners' current proficiency level, while 15% exceeded the learners' current level of proficiency. The findings suggest that although AI tools provide sufficient comprehensible input, they do not consistently provide language at an optimal level as proposed by Krashen's input hypothesis (i+1). The study contributes to the growing body of literature on SLA by linking established theories with AI-powered language-learning tools. It provides practical implications for educators, curriculum designers, and AI developers seeking to design more adaptive and pedagogically sound language learning systems.

Keywords: Second Language Acquisition (SLA), Artificial Intelligence (AI), Krashen's Input Hypothesis, Computer-Assisted Language Learning, and AI tools in Language Learning.

1. Introduction of the Study

In this current digital age, technology has transformed teaching and learning processes, particularly in the area of Second Language Acquisition (SLA), with the demand for multilingual competence spreading due to globalization, and effective language learning methods are receiving mixed responses from educationalists and researchers (De Costa P, Park J, 2019). SLA encompasses more than just acquiring grammatical knowledge. Meaningful interaction and context-based language use develop communicative competence. The development of communicative competence through meaningful interaction and contextualized language use (Ellis, 2015) said that many theoretical frameworks were proposed to explain language acquisition, and Krashen's Input Hypothesis remains one of the leading frameworks.

According to (Krashen, 1982) he said, language acquisition occurs when learners are exposed to comprehensible input that is slightly beyond their current level of proficiency, commonly referred to as (i+1), and this input must be understandable for learners to acquire new linguistic structures naturally rather than through h clear instruction.

The advancement of Artificial Intelligence (AI) opens up new opportunities that seem to enhance language learning processes. AI-powered tools, including chatbots and intelligent tutoring systems, are progressively being used to arouse interactive communication, and they provide fast feedback and initial learning experiences (Zhu et al., 2025). Together, these technologies represent a major insightful development within the broader field of Computer-Assisted Language Learning (CALL), which has underlined the role of technology in motivating learners' autonomy and their engagement (Chapelle C, 2009). Current research also suggests that AI-driven systems can assist in adaptive learning and (Wang et al., 2024) create more interactive environments for language learners.

The role of AI in language provides input, interaction, and output jointly helpful in acquisition, while VanPatten (2020) highlights the cognitive processing of input for internalization. These viewpoints align with Krashen's Input Hypothesis (Krashen, 1982), which postulates that acquisition occurs through experience to comprehensible input to some extent beyond the learner's current level (i+1). However, following theoretical developments, such as Michael H. Long's 1996) Interaction Hypothesis and Swain's (2005) Output Hypothesis, highlight the importance of mediation of meaning and learner construction. With the development of Computer-Assisted Language Learning (CALL), scholars have observed how technology can operationalize SLA theories. (Chapelle C, 2009) highlights that CALL must be operationalized in SLA ideologies. Early work proposed by (Levy M, 1997) and (Zhao Y, 2003) they said, the digital tools can improve interaction and learner self-sufficiency. However, (Kern, 2014) opens up the concept of technology as a "pharmakon," highlighting its double potential as both beneficial and challenging. Recent CALL research (Godwin-Jones, 2021) Xu & (Warschauer & Xu, 2024; Lai & Li, 2021) highlights the importance of pedagogical alignment, disagreeing that technology alone does not assure learning efficiency.

Despite these developments, there is a significant need to know about AI tools from a theoretical perspective. On the other hand, AI applications are often admired for their efficiency and innovations, but their alignment with established (SLA) theories is particularly delivering a comprehensible input (i+1) at the level, and that has not been adequately explored. Mostly, AI-generated input may be either too simple or too complex, raising questions about its competence in supporting ideal acquisition.

Subsequently, this study aims to examine the extent to which AI-based language learning tools offer input that aligns with Krashen's Input Hypothesis. Exploring the both learners' perceptions and their actual interactions with AI

systems. This research study aims to bridge a gap between technological innovation and theoretical fundamentals in second language acquisition.

1.1 Objective of the Study

The current study aims to examine the extent to which language learning tools like AI models provide comprehensible input (i+1) as per Krashen's Input Hypothesis. This research aims to study not only the effectiveness of current AI applications but also to theoretically explore their soundness in second language acquisition systems.

1.2 Research Objectives

1. To examine whether AI-powered language learning tools provide language input that corresponds with Krashen's concept of comprehensible input (i+1).
2. To investigate learners' perceptions regarding the clarity, usefulness, adaptability, feedback quality, and motivational effects of AI-generated language input.
3. To analyze AI-generated learner interactions using qualitative content analysis to determine whether AI responses correspond to the categories of (i+1) or (i+2).
4. To evaluate the extent to which current AI language learning systems operationalize Krashen's Input Hypothesis and Affective Filter Hypothesis in authentic learning environments.

1.3 Research Question:

1. To what extent do AI-powered language learning tools provide comprehensible input consistent with Krashen's i+1 principle?
2. How do learners perceive the clarity, usefulness, adaptability, and effectiveness of AI-generated language input?
3. How frequently do AI-generated responses correspond to the categories of i, i+1, and i+2 during authentic learner interactions?
4. To what extent do AI-powered language learning tools support Krashen's Affective Filter Hypothesis by reducing learner anxiety and enhancing motivation?

2. Literature Review

AI is increasingly being integrated into language education (Seters, 2020). It is transforming language learning through intelligent tutoring systems, conversational agents, speech recognition technologies, and generative AI systems. These technologies enable personalized instruction, immediate feedback, adaptive learning experiences, and authentic language interaction, making AI a valuable tool for supporting language development (Zawacki-Richter et al., 2019). Within SLA research, language acquisition is widely understood as a process that depends on meaningful exposure to language input, learner interaction, and language production. Similarly, VanPatten (2020) emphasized that learners actively process linguistic input to acquire a second language. These perspectives closely align with Krashen's (1982) Input Hypothesis, which proposes that language acquisition occurs when learners receive comprehensible input that is slightly beyond their current level of proficiency (i+1). Further argued that appropriately challenging language input facilitates comprehension and language development.

The integration of technology into language learning has evolved considerably through Computer-Assisted Language Learning (CALL). Chapelle (2009) emphasized that effective technological tools should be grounded in established SLA theories, while Levy (1997) and Zhao (2003) demonstrated that digital technologies promote interactive and learner-centred language learning. Nevertheless, Kern (2014) described technology as a pharmakon, suggesting that its educational value depends largely on how it is implemented pedagogically.

A growing body of research has also demonstrated that AI positively influences learner motivation, engagement, and language performance. (Stockwell, 2013) associated technology-enhanced learning with increased learner motivation, while (Yaqoob et al., 2025) reported improved learner engagement through technology integration. (Apriani et al., 2024) further found that AI-powered chatbots enhanced learners' writing skills, self-efficacy, and self-regulation. These findings are

consistent with Krashen's Affective Filter Hypothesis, which proposes that language acquisition is facilitated when learners experience low anxiety and high motivation.

Despite these advantages, researchers have highlighted several pedagogical and ethical concerns associated with AI-assisted language learning. (Zawacki-Richter et al., 2019) emphasized the transformative potential of AI in higher education while stressing the importance of pedagogical alignment. Similarly, (Alaqlobi et al., 2024) described AI as a balancing act that offers both opportunities and challenges, whereas (Asim Kumar Betal, 2023) highlighted the educational benefits of adaptive learning systems alongside concerns regarding authenticity, learner variability, and ethical considerations.

The emergence of generative AI and large language models has further expanded the possibilities for language learning. Studies by Kohnke et al. 2023) demonstrated that AI chat systems can generate contextually appropriate language, provide writing support, and facilitate learner interaction. Moreover, (Tzu Yu Tai & Howard Chen, 2024) argued that multimodal AI environments enhance language learning by integrating text, speech, and visual input within authentic learning contexts. Nevertheless, previous studies (Bibauw et al., 2022) have also cautioned that AI-generated language may occasionally lack pragmatic appropriateness, sociocultural awareness, and emotional intelligence, limiting its ability to fully replicate authentic human communication (Bender E, Gebru T, McMillan-Major A, 2021).

2.1 Research Gap

While previous studies have extensively documented the effectiveness of AI tools in supporting language learning, empirical investigation of their alignment with established SLA theories, particularly Krashen's Input Hypothesis, remains limited. Very few studies have empirically examined whether AI-generated language input aligns with established theories of second language acquisition, particularly Krashen's Input Hypothesis (i+1). Existing research has rarely investigated whether AI consistently provides language input that is appropriately challenging for learners while maintaining comprehensibility. Consequently, a significant gap remains between advances in AI-assisted language learning and their theoretical alignment with SLA principles. The present study addresses this gap by empirically examining AI-generated language through Krashen's Input Hypothesis using both learners' perceptions and qualitative analyses of authentic learner–AI interactions.

3. Research Methodology

3.1. Research Design

The methodological framework integrated quantitative and qualitative approaches to examine AI-generated language input through the lens of Krashen's Input Hypothesis. To examine learners' perceptions of AI-generated language input, a structured questionnaire was used to collect quantitative data, while qualitative data were collected from screenshots of learner-AI interactions, and content analysis was used to analyze them. The both data were collected during the same phase of the study, analyzed independently, and after analysis, they were integrated to discuss the findings. The triangulation of findings was enabled through the integration of both approaches, which provided a comprehensive understanding of the role of AI in Second Language Acquisition (SLA).

3.2. Theoretical & Conceptual Frameworks

3.2.1. Theoretical Framework

This study explains Krashen's Second Language Acquisition Theory, specifically, the Input Hypothesis as well as the Affective Filter Hypothesis. Krashen's Input Hypothesis states that language acquisition will take place if learners receive input at the level just above their current capabilities (i + 1). This input is provided using the target language, which allows learners to naturally acquire the new language in an environment where they are exposed to it and, as a result, you help them grow their skills.

Additionally, this research utilizes Krashen's

Affective Filter Hypothesis, indicating emotional factor influence on language acquisition. High motivation, good self-confidence, and low anxiety facilitate language learning, while negative effects may hinder the acquisition process.

By using these concepts, this study evaluates whether AI-driven platforms offer language learners the right balance of educational support and intellectual challenge. We utilize a specific theoretical framework to interpret the data collected from both the learners and the AI models

3.2.2. Conceptual Framework

The conceptual framework illustrates the theoretical relationship examined in the present study. AI-powered language learning tools generate language input that is evaluated through Krashen's Input Hypothesis (i+1). The effectiveness of this input is assessed from two perspectives: learners' perceptions, measured through a questionnaire, and qualitative content analysis of learner–AI interactions. Together, these components provide evidence regarding the role of AI-generated language input in supporting second language acquisition.

Annexure (A)

3.3. Participants and Sampling

Participants were selected using purposive sampling because the study required learners who had prior experience using AI-powered language learning tools. First-year students from the Department of English studying at Shaheed Benazir Bhutto University, Shaheed Benazirabad (SBBU SBA) were selected because they were at an early stage of second language development and therefore represented an appropriate population for evaluating whether AI-powered language learning tools provide comprehensible input (i+1) consistent with Krashen's Input Hypothesis. Shaheed Benazir Bhutto University, Shaheed Benazirabad, was selected because it provided accessible participants who met the study's inclusion criteria and were available during the data collection period. 40 participants were selected to answer the questionnaire because they met the study's inclusion criteria and they voluntarily participated in the study. Based on the names provided during data collection, the sample comprised 22 female and 18 male participants. The participants were approximately 17–20 years of age and were considered beginner-level English learners as they had recently commenced their undergraduate studies in English. All participants had prior experience using AI-powered language learning tools, with their experience ranging from approximately three months to one year, enabling them to provide informed responses and authentic learner–AI interaction screenshots for qualitative analysis. The qualitative data were collected through 38 screenshots of learner-AI interaction provided by the participants. Participants were instructed to interact with AI-powered language learning tools using English language learning queries relevant to their own learning needs. No standardized prompts were provided, as the study aimed to examine authentic learner–AI interactions in natural learning contexts. Consequently, the prompts varied across participants, reflecting genuine educational use of AI-powered language learning tools. The data were analyzed through a content analysis method, and findings were integrated with the results of quantitative data.

3.4.1 Questionnaire

The questionnaire was developed specifically for the present study following a comprehensive review of the literature on Artificial Intelligence in language learning, Krashen's Input Hypothesis, and second language acquisition. Based on the identified research constructs and the objectives of the study, questionnaire items were drafted with the assistance of generative AI and subsequently reviewed, refined, and finalized by the researcher to ensure their relevance, clarity, and alignment with the research objectives. The final questionnaire consisted of 13 five-point Likert-scale items designed to examine learners' perceptions of AI-generated language input and its role in second language acquisition. The structured questionnaire with 13 items in the Likert-scale format was then administered online via Google

Forms to collect learners' perceptions:

1. The clarity of AI-produced responses.
2. How difficult is the input?
3. The content serves a purpose: language development.
4. AI provides support for feedback and correction
5. The respondents were given items, which they rated on a five-point scale from "Strongly Disagree" to "Strongly Agree", and their responses were downloaded. Responses were compiled into MS Excel and SPSS.

To ensure the internal consistency of the instrument, Cronbach's alpha reliability analysis was conducted, yielding a coefficient of approximately 0.70, indicating acceptable reliability for research purposes.

3.4.2 Screenshot Collection

While performing learning activities in languages, the participants also submitted screenshots of their conversations with AI tools. The researchers reviewed the screenshots manually before coding them as i+1 or i+2 based on linguistic complexity.

3.4.3 Data Analysis

This research study has used two complementary methods for data analysis. One is Statistical analysis for quantitative survey data and descriptive data analysis for qualitative Screenshots. The main purpose was to determine whether AI-generated language input qualified for Krashen's hypothesis about input in general, including (i + 1) input.

3.4.4 Analysis of Questionnaire Data (Quantitative)

The questionnaire surveys were distributed through Google Forms and processed in Excel for Windows and SPSS 13.0 for statistical examination (n = 40). Using descriptive statistics, the 5-point Likert scale scores were analyzed.

1. A list of frequencies and percentages for each item response.
2. Mean Scores Assess General Trends in Perception
3. Item-wise analysis to examine insights on AI tool usage (satisfaction level), clarity of input (ease of use), perceived difficulty, motivation, and feedback.

Participant perspectives on AI-generated responses were analyzed through the data.

1. Basic or repetitive (i)
2. Comprehensible yet somewhat difficult to grasp.
3. Excessively sophisticated to be beneficial.
4. The results were interpreted to detect the perceived usefulness of the AI tools in providing appropriate second language input (incorporating motivation and affective factors linked to Krashen's Affective Filter Hypothesis).

3.4.3 Analysis of Qualitative Data

The qualitative data were analyzed using directed content analysis based on Krashen's Input Hypothesis (i+1). A total of 40 screenshots of learner–AI interactions served as the unit of analysis. Since the study aimed to examine whether AI-generated language input aligned with Krashen's Input Hypothesis, the coding framework was developed deductively from the theoretical concepts of i (input below the learner's current level), i+1 (comprehensible input slightly beyond the learner's current level), and i+2 (input beyond the learner's current level of proficiency).

Before the coding process, coding criteria were established for each category. AI-generated responses were coded as (i) when the language input was below the learner's apparent level of proficiency and provided little or no linguistic challenge. Responses were coded as (i+1) when they presented language that was slightly beyond the learner's current level but remained understandable through clear explanations, contextual support, or illustrative examples. Responses were coded as (i+2) when the language or concepts exceeded the learner's current level of proficiency and were likely to hinder comprehension.

Each learner–AI interaction was examined by considering both the learner and the corresponding AI-generated response. Coding decisions were based on the complexity of the language, clarity of explanation, contextual support, and the extent to which the response

represented comprehensible input according to Krashen's Input Hypothesis. For example, when AI responded to a learner's request by providing a clear explanation of active practice supported with simple examples, the interaction was classified as (i+1) because the response extended the learner's understanding while remaining comprehensible. Similarly, an interaction explaining the importance of vocabulary through organized explanations and practical learning strategies was also categorized as (i+1) as it introduced slightly more advanced language in an understandable manner.

3.4.3 Triangulation

The combination of learners' perceptions examined through the questionnaire and objective screenshot coding enabled triangulation of findings through multiple data sources. As a result, the researcher could compare what learners felt about the AI responses and what the content actually showed. This enhanced the credibility of the results.

3.4.4 Ethical Considerations

This study adhered to the ethical principles of research involving human participants. Before data collection, written informed consent was obtained from all participants. They were informed about the purpose of the study, the voluntary nature of their participation, and their right to decline or withdraw from the study at any stage without any consequences. Participants were also assured that their identities would remain confidential and anonymous, and that the information collected, including questionnaire responses and learner–AI interaction screenshots, would be used solely for academic research purposes. As the study involved voluntary participation and posed minimal risk to participants, no formal ethics approval was required by the Department of English at Shaheed Benazir Bhutto University, Shaheed Benazir Abad.

4. Results and Findings

This section presents the quantitative and qualitative data findings to determine whether AI tools provide language input to users that is consistent with the (i+1) concept of Krashen's input hypothesis. This study adopted a mixed-methods design that comprised quantitative data collection and qualitative data collection. Quantitative data were collected from 40 participants using a Likert-scale questionnaire, while qualitative data were collected through the analysis of 38 screenshots submitted by the learners reflecting their interaction with AI tools.

4.1. Quantitative Analysis

The second language learning user perception questionnaire consisted of 13 items on a Likert scale. Findings from each item have been summarized below.

Table 1. Descriptive Analysis of Quantitative Data.

Items	Statement	Mean	Standard Deviation
1	The AI tool provides language input that I find easy to understand.	4.30	0.65
2	The language used by the AI is just a little beyond my current proficiency (i+1).	3.30	1.02
3	The AI adjusts the difficulty of language input based on my skill level.	3.83	0.93
4	I receive immediate feedback when interacting with the AI tool.	4.28	0.78
5	The AI helps me notice my language mistakes effectively.	4.03	1.07
6	The AI introduces new vocabulary in a way I can understand.	4.08	1.14
7	The content provided by the AI is meaningful and relevant to my learning goals.	4.23	0.95
8	The AI simulates natural communication well.	3.88	1.11
9	The AI provides enough examples to help me understand new language structures	4.18	0.84
10	Using the AI tool reduces my anxiety about learning the language.	3.93	1.02
11	The AI motivates me to continue practicing the	3.90	1.15

	language regularly.		
12	The AI tool makes me feel confident in my language abilities.	3.80	1.02
13	Overall, the AI tool supports my second language learning effectively.	4.60	0.70

4.2. Interpretation of Results:

1. According to (Norman.G 2010) The three highest-rated items that the SLA received overall support for were the M=4.60 clarity of language input and timely feedback from the SLA M=4.30 M=4.28.
2. Research conducted on English as a Foreign Language (EFL) learners revealed that the learners agreed that the AI tools they used assisted them in understanding new vocabulary (M = 4.08), correcting mistakes (M = 4.03), and providing meaningful content (M = 4.23).
3. The optimal level of i+1 being perceived differently by learners limits its adaptive provision. The score of an item related to Krashen's (1982) i+1 concept ("The language used is a little higher than my level") scored moderately (M = 3.30), suggesting that the provision of playing games with modified output input is not frequently occurring.

Generally, there was a positive response for some affect-related items like anxiety reduction (M = 3.93) and motivation (M = 3.90).

4.3. Qualitative Analysis

To get a deeper analysis of 38 screenshots, they were collected and coded as per whether the AI language input matches the (i+1) principle. Tools like ChatGPT, Duolingo, and ELSA Speak were utilized for these interactions.

Qualitative Analysis Coding Table

Table 2: Individual Coding of Screenshots According to the (i+1) Principle

Screenshot	Code	Interpretation
S1	i+1	Slightly advanced but understandable
S2	i+1	Slightly advanced but understandable
S3	I	Current level / too simple
S4	i+1	Slightly advanced but understandable
S5	i+2	Too advanced and difficult
S6	i+1	Slightly advanced but understandable
S7	i+1	Slightly advanced but understandable
S8	I	Current level / too simple
S9	i+1	Slightly advanced but understandable
S10	i+1	Slightly advanced but understandable
S11	I	Current level / too simple
S12	i+1	Slightly advanced but understandable
S13	i+2	Too advanced and difficult
S14	i+1	Slightly advanced but understandable
S15	i+1	Slightly advanced but understandable
S16	I	Current level / too simple
S17	i+1	Slightly advanced but understandable
S18	i+1	Slightly advanced but understandable
S19	i+2	Too advanced and difficult
S20	i+1	Slightly advanced but understandable
S21	I	Current level / too simple
S22	i+1	Slightly advanced but understandable
S23	i+1	Slightly advanced but understandable
S24	I	Current level / too simple
S25	i+1	Slightly advanced but understandable
S26	i+1	Slightly advanced but understandable
S27	i+2	Too advanced and difficult
S28	i+1	Slightly advanced but understandable
S29	I	Current level / too simple
S30	i+1	Slightly advanced but understandable
S31	i+1	Slightly advanced but understandable
S32	I	Current level / too simple
S33	i+1	Slightly advanced but understandable
S34	i+1	Slightly advanced but understandable
S35	i+2	Too advanced and difficult
S36	i+1	Slightly advanced but understandable
S37	I	Current level / too simple
S38	i+1	Slightly advanced but understandable

1. The above table describes the analysis of 38 screenshots that were collected from 40 participants.
2. The study found that while much of the interaction was supportive of the learner, a few were not since they were not personalized (student-oriented) or contextualized.
3. The AI tools usually default to easier language or gave input that assumed a more advanced user profile in many cases.

Table 3. Summary of Qualitative Coding results (n-38)

Code category	Description	Frequency (n)	Percentage
I	Input at or below learner's (too simple)	10	25%
i+1	Input slightly above current level but comprehensible	23	60%
I+2	Input substantially above current level and difficult to understand	5	15%
Total	Screenshots Analyzed	38	100%

4.4. Summary of Findings

The outcomes revealed through quantitative and qualitative results indicate the following.

1. AI tools help in providing comprehensible input, feedback, and motivating learners.
2. The consistency of alignment is not as per the i+1 input condition. While over half of the qualitative samples are found to be appropriate in linguistic challenge, the quantitative data suggest that not all learners are presented with input slightly above their current level.
3. Real-time dialogue systems (like ChatGPT) seem more able to switch according to the learner's level, although results vary according to the user's prompt and context.
4. The affective dimensions of SLA, which include anxiety reduction and motivation, increasingly revealed the relevance of Krashen's Affective Filter Hypothesis.
5. The potential of AI to put some aspects of Krashen's theory into practice is clear from those insights, although so too is the inconsistency in some cases (particularly in relation to the level of individual difficulty).

5. Discussion and Suggestions

5.1. Discussion

The purpose of the current study is to examine whether the language that is produced through the use of AI tools fulfils Krashen's Input Hypothesis, specifically the i+1 principle in terms of Second Language Acquisition (SLA). Low anxiety and comprehensible input certainly help in facilitating SLA, but how far AI tools assist with it needs to be investigated. The quantitative questionnaire responses and qualitative screenshot analysis provide insights into this study.

5.1.1 AI and the Provision of Comprehensible Input

The discrepancy between the high scores for comprehensibility (M=4.30) and the moderate scores for optimal challenge (M=3.30) indicates a need for more adaptive language generation in AI systems. These findings are consistent with (Asim Kumar Betal, 2023), who argued that AI enhances second language learning by providing immediate language support and personalized assistance but may not always adapt the linguistic complexity of its responses to individual learners. Similarly, Sultan A. Almelhes 2023) reported that AI-generated language is generally effective in supporting language learning; however, its adaptive capability remains inconsistent across different learning contexts. The present study extends these findings by evaluating AI-generated language directly through Krashen's Input Hypothesis, demonstrating that comprehensibility alone does not necessarily indicate optimal language input.

5.1.2 Adaptive Feedback and the Affective Filter

The quantitative findings further revealed that participants positively evaluated AI tools for providing immediate feedback, vocabulary support, and increased motivation. These findings suggest that AI-powered language

learning environments create conditions that support language acquisition by promoting learner engagement and reducing anxiety.

These results are consistent with previous studies reporting that AI-assisted language learning enhances learner motivation, engagement, and confidence through personalized interaction and immediate feedback (Apriani, 2024; Wang, 2024). Likewise, Godwin-Jones (2021) emphasized that AI-supported learning environments encourage communicative and learner-centered language learning. From the perspective of Krashen's Affective Filter Hypothesis, the present findings suggest that AI can facilitate language acquisition by creating a low-anxiety learning environment in which learners feel more comfortable practicing the target language.

5.1.3 Alignment with Krashen's Framework

The findings demonstrate a clear alignment between learners' positive perceptions of AI-generated language and the conditions (Krashen, 1982) described as conducive to second language acquisition, particularly regarding comprehensible input.

These results are consistent with previous studies reporting that AI-assisted language learning enhances learner motivation, engagement, and confidence through personalized interaction and immediate feedback (Apriani et al., 2024). Likewise, Godwin-Jones (2021) emphasized that AI-supported learning environments encourage communicative and learner-centered language learning. From the perspective of Krashen's Affective Filter Hypothesis, the present findings suggest that AI can facilitate language acquisition by creating a low-anxiety learning environment in which learners feel more comfortable practicing the target language.

6. Conclusion and Recommendations

6.1. Conclusion

This study examined whether AI-powered language learning tools provide comprehensible input consistent with Krashen's Input Hypothesis and explored learners' perceptions of AI-generated language input in second language acquisition. The findings indicate that AI generally provides understandable language, timely feedback, vocabulary support, and interactive learning experiences that facilitate language learning. However, the study also demonstrates that AI-generated language does not consistently provide input at the optimal (i+1) level, suggesting that the pedagogical effectiveness of AI depends on its ability to adapt language to learners' proficiency levels.

From a theoretical perspective, this study contributes to the growing body of research on artificial intelligence in second language acquisition by empirically examining AI-generated language through the lens of Krashen's Input Hypothesis. While previous studies have primarily focused on learner satisfaction, technological effectiveness, or educational outcomes, the present study extends the literature by evaluating whether AI-generated language aligns with a well-established theory of language acquisition. In doing so, it strengthens the connection between emerging AI technologies and established SLA theory.

The findings also have broader educational implications. AI-powered language learning tools can serve as valuable supplementary resources by providing learners with immediate explanations, personalized support, and opportunities for independent practice. Nevertheless, language teachers continue to play a crucial role in guiding learners' interactions with AI, interpreting AI-generated responses, and ensuring that language input remains appropriate for learners' developmental needs (Kohnke & Moorhouse, 2020). Likewise, AI developers should continue improving adaptive language generation so that AI systems can more consistently provide comprehensible input tailored to individual learners.

Despite these contributions, the findings should be interpreted in light of several limitations. The study was conducted with a relatively small purposively selected sample from a single university, and the qualitative

analysis was based on authentic learner-generated prompts, which introduced variability in AI responses. These limitations may affect the generalizability of the findings and highlight the need for further investigation using larger and more diverse samples, standardized prompts, and longitudinal research designs.

In conclusion, artificial intelligence has considerable potential to support second language acquisition when integrated with sound pedagogical principles and established SLA theories. Rather than replacing language teachers, AI should be viewed as a complementary educational tool capable of enhancing language learning through meaningful interaction, personalized support, and comprehensible input. As AI technologies continue to evolve, their successful integration into language education will depend on maintaining a strong balance between technological innovation and established theories of second language acquisition.

6.2. Recommendations

The following provisions are suggested based on the findings.

For Educators and Curriculum Designers

1. Provide explicit guidance to students on how to use AI tools in ways that promote level-appropriate input.
2. Combine AI with traditional methods to monitor input difficulty and ensure proper progression in language skills.

For AI Developers

1. Incorporate diagnostic assessments to calibrate input level based on real-time learner performance.
2. Design features that gradually increase complexity, simulating natural language growth as outlined in Krashen's hypothesis.

For Future Researchers

1. Conduct longitudinal studies that observe the learning impact of AI use over time, ideally with control groups.
2. Develop rubrics or coding systems to quantitatively assess the presence of i+1 features in AI-generated dialogues.

References

De Costa P, Park J, W. L. (2019). Linguistic entrepreneurship as affective regime: organizations, audit culture, and second/foreign language education policy. Language Policy, 18(3), 387–406. https://doi.org/10.1007/S10993-018-9492-4

Ellis, R. (2015). Understanding second language acquisition. 365. https://global.oup.com/academic/product/understanding-second-language-acquisition-9780194422048

Krashen, S. D. (1982). Principles and Practice in Second Language Acquisition

Zhu, M., Wang, C., & College, C. (2025). A RTICLE A systematic review of research on AI in language education : Current status and future implications. 29(1), 1–29.

Chapelle C. (2009). The relationship between second language acquisition theory and computer-assisted language learning. Modern Language Journal, 93(SUPPL. 1), 741–753. https://doi.org/10.1111/j.1540-4781.2009.00970.x

Wang, F., Cheung, A. C. K., & Chai, C. S. (2024). Language learning development in human-AI interaction: A thematic review of the research landscape. System, 125, 103424. https://doi.org/10.1016/j.system.2024.103424

VanPatten, B. (2020). Input Processing in Adult L2 Acquisition. Theories in Second Language Acquisition, 105–127. https://doi.org/10.4324/9780429503986-6

Swain, M. (2005). The output hypothesis: Theory and research. Handbook of Research in Second Language Teaching and Learning, 471–483. https://doi.org/10.4324/9781410612700-38

Levy M. (1997). Computer-Assisted Language Learning. https://doi.org/10.1093/oso/9780198236320.001.0001

Zhao Y. (2003). Recent Developments in Technology and Language Learning. CALICO Journal, 21, 7–27.

https://doi.org/10.1558/cj.v21i1.7-27

Kern, R. (2014). Technology as Pharmakon: The promise and perils of the internet for foreign language education. Modern Language Journal, 98(1), 340–357. https://doi.org/10.1111/j.1540-4781.2014.12065.x

Godwin-Jones, R. (2021). Evolving technologies for language learning. 25(3), 6–26.

Warschauer, M., & Xu, Y. (2024). Artificial intelligence for language learning : Entering a new era. 28(2), 1–4.

Lai & Li. (2021). TechnologyandLearnerAutonomy_autonomous.

Seters, V. (2020). Computers and Education : Artificial Intelligence. 1, 1–5. https://doi.org/10.1016/j.caeai.2020.100001

Zawacki-Richter, O., Marín, V. I., & Bond, M. (2019). Systematic review of research on artificial intelligence applications in higher education – where are the educators ?

Stockwell, G. (2013). Technology and Motivation in English-Language Teaching and Learning. International Perspectives on Motivation, 156–175. https://doi.org/10.1057/9781137000873_9

Yaqoob, A., Nawab, M., & Sattar, S. (2025). The Impact of Technology Integration on Language Learning: Examining Learner Motivation, Engagement, and Outcome. International Journal of Law and Policy, 3(7), 28–51. https://doi.org/10.59022/ijlp.347

Apriani, E., Cardoso, L., & Obaid, A. J. (2024). Impact of AI-Powered Chatbots on EFL Students ' Writing Skills, Self-Efficacy, and Self-Regulation : A Mixed-Methods Study. 1(2), 57–72.

Alaqlobi, O., Alduais, A., Alasmari, M., & Qasem, F. (2024). Artificial Intelligence in Language Acquisition : A Balancing Act of Potential and Challenges. 06(06), 1103–1122.

Asim Kumar Betal. (2023). Enhancing Second Language Acquisition through Artificial Intelligence (AI): Current Insights and Future Directions. 7(39), 167–186.

Kohnke, L., Moorhouse, B. L., & Zou, D. (2023). ChatGPT for Language Teaching and Learning. 1–14. https://doi.org/10.1177/00336882231162868

Tzu Yu Tai & Howard Chen. (2024). Navigating elementary EFL speaking skills with generative AI chatbots: Exploring individual and paired interactions. Computers & Education, 220, 105112. https://doi.org/10.1016/j.compedu.2024.105112

Bibauw, S., François, T., & Desmet, P. (2022). Dialogue Systems for Language Learning : Chatbots and beyond. 121–134.

Bender, E, Gebru, T, McMillan-Major, A, & S. S. (2021). On the dangers of stochastic parrots: Can language models be too big? FAccT 2021 - Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency, 610–623. https://doi.org/10.1145/3442188.3445922

Norman, G. (2010). Likert scales, levels of measurement and the "laws" of statistics. Advances in Health Sciences Education, 15(3), 625-632. https://doi.org/10.1007/s10459-010-9222-y

Sultan A. Almelhes. (2023). AReviewofArtificialIntelligenceAdoptioninSecond-LanguageLearning.pdf.

Kohnke, L., & Moorhouse, B. L. (2020). Facilitating Synchronous Online Language Learning through Zoom. https://doi.org/10.1177/0033688220937235

Annexure (A)

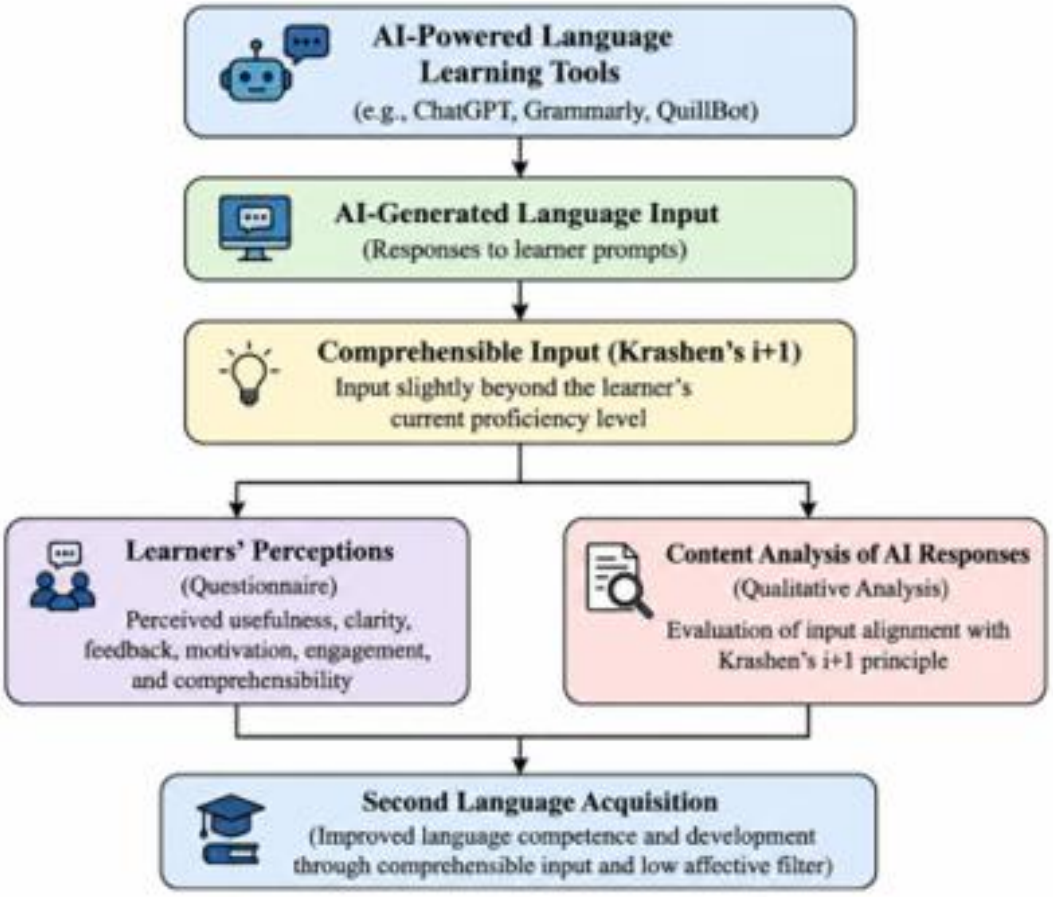

Figure 1. Conceptual Framework of the Study

This framework illustrates how AI-powered tools generate language input that is evaluated through learners' perceptions and content analysis to determine its alignment with Krashen's input hypothesis, ultimately contributing to second language acquisition.